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SUBJECT: Results for Water Supply Performance Evaluation Study 39 (WS039)

FROM: Paul W. Britton, Statistician
National Water Quality Assurance Programs Branch
Ecological Exposure Research Division

TO: Designated USEPA and State WS Study Coordinators, and Selected Individual Laboratory Addressees

THRU: Raymond J. Wesselman, Acting Chief
National Water Quality Assurance Programs Branch
Ecological Exposure Research Division

I. DISCUSSION OF WS039 CHEMISTRY RESULTS

WS039 has been completed by the National Exposure Research Laboratory - Cincinnati (NERL-Cincinnati) as the second FY97 study for evaluation of U.S. Environmental Protection Agency (USEPA) regional laboratories, the state laboratories and other selected laboratories involved in chemical analyses covered under the Drinking Water Laboratory Certification Program. As seen in the enclosed summaries, the majority of laboratories produced acceptable results from these samples; 87.0 percent of the usable results reported were acceptable. The results relating to your interests are also enclosed.

One analyte had a failure rate over 30 percent and one analyte was not evaluated:

1) 2,4-D - 42.3 percent of those reporting the analyte failed. There were two factors that I believe explain this high failure rate:

   a) The design of the WS039 herbicides sample was changed from previous studies. Not only were all the regulated herbicides in one sample for the first time, but 2,4-D was also present in two forms; as 2,4-D AND as 2,4-D butylester. Laboratories that did not hydrolyze the 2,4-D before measurement as the method requires, did not see all the 2,4-D present.

b) The fixed limits we are required to use for 2,4-D do not allow for the 79.8 percent mean recovery which characterizes the method at the concentration studied. Based on performance before the change in sample design, we would have expected statistically-set limits to be 14.5 to 75.1 µg/L. Only 9 labs reported a 2,4-D value above 75.1, but 35 labs reported below 14.5, which represents a more statistically appropriate failure rate of 11.5 percent..

It seems reasonable to suspect that some of the labs that missed the required study limits low failed to convert all the 2,4-D before attempting to measure it, but that most of these laboratories were just unlucky in that they produced perfectly normal data that just happened to be below the fixed limits required for this study.

2) Cis-1,3-Dichloropropene WAS NOT EVALUATED for WS039. It was intended to be present in VOC #2 at a measureable concentration. However, due to a production error, it was only present at about 0.25 µg/L. We judged this concentration as too low to be reliably measurable.

Within the data reported for VOC #2, the only qualitative-challenge group in this study, the missing analyte with the highest false positive rates was 1,2,3-Trichlorobenzene at about 3 percent of those reporting data for VOC #2.

This memorandum highlights the analytes that had a high rate of "NOT ACCEPT." analytical responses. It is each laboratory management's responsibility to investigate their "NOT ACCEPT." results to discover their own specific problems.

For those interested in the aroclor present in the PCB sample, it was 1260.

II. GENERAL INFORMATION

In response to 40 CFR Part 141 modifications, the following acceptance limits were used at all concentration levels unless otherwise specified:

Analyte	Acceptance Limits
Antimony	True Value (TV) ± 30%, for TV ≥ 6 µg/L
Barium	TV ± 15%, for TV ≥ 150 µg/L
Beryllium	TV ± 15%, for TV ≥ 1 µg/L
Cadmium	TV ± 20%, for TV ≥ 2 µg/L
Chromium	TV ± 15%, for TV ≥ 10 µg/L
Copper	TV ± 10%, for TV ≥ 50 µg/L
Lead	TV ± 30%, for TV ≥ 5 µg/L
Mercury	TV ± 30%, for TV ≥ 0.5 µg/L
Nickel	TV ± 15%, for TV ≥ 10 µg/L
Selenium	TV ± 20%, for TV ≥ 10 µg/L
Thallium	TV ± 30%, for TV ≥ 2 µg/L

Analyte	Acceptance Limits
Nitrate	TV ± 10%, for TV ≥ 0.4 mg/L
Nitrite	TV ± 15%, for TV ≥ 0.4 mg/L
Fluoride	TV ± 10%, for TV between 1 and10 mg/L
Total Cyanide	TV ± 25%, for TV ≥ 0.1 mg/L
Alachlor	TV ± 45%
Atrazine	TV ± 45%
Chlordane	TV ± 45%
Endrin	TV ± 30%
Heptachlor	TV ± 45%
Heptachlor epoxide	TV ± 45%
Lindane	TV ± 45%
Methoxychlor	TV ± 45%
Toxaphene	TV ± 45%
Carbofuran	TV ± 45%

Analyte	Acceptance Limits
2,4-D	True Value (TV) ± 50%
2,4,5-TP (Silvex)	TV ± 50%
Pentachlorophenol	TV ± 50%
Decachlorobiphenyl	TV ± 100%
THMs	TV ± 20%
DBCP	TV ± 40%
EDB	TV ± 40%
Vinyl chloride	TV ± 40%
all other regulated VOCs:	TV ± 40%, for TV <10 µg/L
	TV ± 20%, for TV ≥ 10 µg/L

(Benzene, Carbon Tetrachloride, Chlorobenzene,
1,2-Dichlorobenzene, 1,4-Dichlorobenzene,
1,2-Dichloroethane, 1,1-Dichloroethylene,
Cis-1,2-Dichloroethylene, Trans-1,2-Dichloroethylene,
Dichloromethane, 1,2-Dichloropropane,
Ethylbenzene, Styrene, Tetrachloroethylene,
Toluene, 1,1,1-Trichloroethane,
1,1,2-Trichloroethane, Trichloroethylene,
1,2,4-Trichlorobenzene, and Total Xylenes)

For all other analytes and/or concentrations: A statistical 95% prediction interval was used based on the statistics of analytical results from USEPA and state laboratories.

The report for each participating Office of Research and Development (ORD) laboratory is sent to the Laboratory Director. Reports for participating contract/grant laboratories are sent to the responsible QA Officer. Regional and state coordinators will find enclosed a personal computer disk containing the study files of interest to them, one copy of the report for each of their participating laboratories and their part of the study participant list. The addressees are responsible for any additional distribution of study results that may be necessary to properly inform state agencies and other participants.

Regarding the procedure that we have established for formal correction of data entry errors, laboratories are responsible for reporting any data entry errors in their report. These errors must to be reported as soon as possible, however, we will accept errors reported up to four (4) months from the date on the cover memorandum used by us for the distribution of individual laboratory reports at the conclusion of the study. If confirmed in our records, errors received before the four-month deadline will be corrected in our study file and report pages will be corrected and reissued to the laboratory and the coordinators that nominated that laboratory. After the four months, PC disks containing the corrected study results will be distributed to each coordinator.

For each laboratory, the Participant List shows all the coordinators that requested that laboratory's participation and identifies the coordinator with primary responsibility for informing the laboratory. If your region/state is the only requesting office, or if your region/state is listed after "samples thru" in the Participant List, it is your responsibility to provide that laboratory with a copy of their evaluation report. Every coordinator is responsible for seeing that any laboratory they requested receives any study summaries, true values, acceptance limits, etc., that the laboratory may request. Requestors for such study information reaching NERL-Cincinnati or ManTech, will be instructed to contact their study coordinator(s) for this information.

In addition, each Regional Coordinator is responsible for assuring that each of their states receives all appropriate study information.

For each "NOT ACCEPT." performance evaluation received, the laboratory should determine the cause(s) and make the procedural changes necessary to improve future data quality.

Thank you for your continued cooperation in these studies. If you have any questions about or problems with the study or the reports, please do not hesitate to contact me at (513) 569-7216.